What is claimed is:

1. A variable capacitance circuit comprising:

first to Nth variable capacitance elements sequentially connected in series between an input terminal and an output terminal, whose capacitances change depending on voltage applied thereto;

an ith bias line on the input terminal side provided between an input terminal portion of the first variable capacitance element and a connection point between a 2ith variable capacitance element and a (2i+1)th variable capacitance element; and

an ith bias line on the output terminal side provided between an output terminal portion of the Nth variable capacitance element and a connection point between a (2i-1)th variable capacitance element and the 2ith variable capacitance element, where N and i are integers satisfying $N=2n+1$, $n \geqq 1$, $1 \leqq i \leqq n$.

2. The variable capacitance circuit according to claim 1, wherein the ith bias line on the input terminal side and the ith bias line on the output terminal side each include a resistance component and/or an inductance component.

3. The variable capacitance circuit according to claim 2, wherein the impedance of the ith bias line on the input terminal

side or the ith bias line on the output terminal side is selected so that a divided voltage applied to one of the series connected first to Nth variable capacitance elements when all the bias lines are not present is smaller than a divided voltage applied to one of the series connected first to Nth variable capacitance elements through the bias lines when the bias lines are present.

4. The variable capacitance circuit according to claim 2, wherein the impedance of the ith bias line on the input terminal side or the ith bias line on the output terminal side is selected so as to be larger than a combined impedance of the variable capacitance elements connected in parallel to the bias lines at an operational radio frequency.

5. The variable capacitance circuit according to claim 1, wherein the input terminal serves both as a signalinput terminal for receiving radio frequency signals and an input terminal for application of direct current bias.

6. The variable capacitance circuit according to claim 1, wherein N=3 and n=1.

7. The variable capacitance circuit according to claim 1, wherein a plurality of groups of the first to Nth variable capacitance elements connected in series are provided between

the input and output terminals, and the ith bias line on the input terminal side and the ith bias line on the output terminal side are each included in each of the groups.

8. A variable capacitance thin film capacitor device comprising:

first to Nth variable capacitance elements formed on a supporting substrate that are sequentially connected in series, whose capacitances change depending on voltage applied thereto;

an ith bias line on an input terminal side provided between an input terminal portion of the first variable capacitance element and a connection point between a 2ith variable capacitance element and a (2i+1)th variable capacitance element; and

an ith bias line on an output terminal side provided between an output terminal portion of the Nth variable capacitance element and a connection point between a (2i-1)th variable capacitance element and the 2ith variable capacitance element, where N and i are integers satisfying $N=2n+1$, $n \geqq 1$, $1 \leqq i \leqq n$.

9. The variable capacitance thin film capacitor device according to claim 8, which comprises a lower electrode layer, a thin film dielectric layer, and an upper electrode layer that are sequentially stacked on the supporting substrate.

10. The variable capacitance thin film capacitor device according to claim 9, wherein the thin film dielectric layer comprises $(Ba_xSr_{1-x})Ti_yO_{3-x}$.

11. The variable capacitance thin film capacitor device according to claim 8, wherein the supporting substrate comprises an input terminal for connection to the input terminal portion of the first variable capacitance element and an output terminal for connection to the output terminal portion of the Nth variable capacitance element formed thereon.

12. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines are formed over the variable capacitance elements connected in series with an insulation layer interposed therebetween.

13. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines are formed directly on the supporting substrate.

14. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines are in the form of a straight line, loop, meander or spiral.

15. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines comprise a high resistance alloy thin film including a Ni-Cr alloy or a Fe-Cr-Al alloy.

16. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines comprise a thin film of a precious metal including Au or Pt.

17. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines comprise a ferromagnetic thin film including Ni or Fe.

18. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines comprise an oxide conductor, nitride conductor or semiconductor.

19. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines comprise at least in part a thin film resistor.

20. The variable capacitance thin film capacitor device according to claim 19, wherein the bias lines comprise a conductor line and the thin film resistor.

21. The variable capacitance thin film capacitor device according to claim 19, wherein the thin film resistor comprises tantalum and has a specific resistance of 1 mΩcm or more.

22. The variable capacitance thin film capacitor device according to claim 19, wherein the thin film resistor has a thickness of 40 nm or more.

23. The variable capacitance thin film capacitor device according to claim 19, wherein the thin film resistor comprises tantalum nitride.

24. The variable capacitance thin film capacitor device according to claim 19, wherein the thin film resistor comprises a high resistance alloy thin film including a Ni-Cr alloy or Fe-Cr-Al alloy.

25. The variable capacitance thin film capacitor device according to claim 19, wherein the thin film resistor comprises a thin film of a precious metal including Au or Pt.

26. The variable capacitance thin film capacitor device according to claim 19, wherein the thin film resistor comprises a ferromagnetic thin film including Ni or Fe.

27. The variable capacitance thin film capacitor device according to claim 19, wherein the thin film resistor comprises an oxide conductor, nitride conductor or semiconductor.

28. The variable capacitance thin film capacitor device according to claim 8, wherein the bias lines are coated with a protective film comprising at least one kind selected between silicon nitride and silicon oxide.

29. The variable capacitance thin film capacitor device according to claim 8, wherein N=3 and n=1.

30. A radio frequency device comprising a resonant circuit which includes in part a variable capacitance thin film capacitor device comprising first to Nth variable capacitance elements formed on a supporting substrate that are sequentially connected in series, whose capacitances change depending on voltage applied thereto, the radio frequency device comprising:

an ith bias line on an input terminal side provided between an input terminal portion of the first variable capacitance element and a connection point between a 2ith variable capacitance element and a (2i+1)th variable capacitance element; and

an ith bias line on an output terminal side provided between an output terminal portion of the Nth variable

capacitance element and a connection point between a (2i-1)th variable capacitance element and the 2ith variable capacitance element, where N and i are integers satisfying N=2n+1, $n \geqq 1$, $1 \leqq i \leqq n$.

31. A radio frequency device comprising a variable capacitance thin film capacitor device for use as a capacitance element for coupling a plurality of resonant circuits, the variable capacitance thin film capacitor device comprising first to Nth variable capacitance elements formed on a supporting substrate that are sequentially connected in series, whose capacitances change depending on voltage applied thereto, the radio frequency device comprising:

an ith bias line on an input terminal side provided between an input terminal portion of the first variable capacitance element and a connection point between a 2ith variable capacitance element and a (2i+1)th variable capacitance element; and

an ith bias line on an output terminal side provided between an output terminal portion of the Nth variable capacitance element and a connection point between a (2i-1)th variable capacitance element and the 2ith variable capacitance element, where N and i are integers satisfying N=2n+1, $n \geqq 1$, $1 \leqq i \leqq n$.